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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/916,566	07/27/2001	Jyoti Mazumder	POM-12502/29	1977

25006 7590 08/18/2003

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EXAMINER

FRANK, ELLIOT L

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 08/18/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/916,566

Applicant(s)

MAZUMDER ET AL.

Examiner

Elliot L Frank

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The following second non-final office action is in response to the applicant's amendment (A) filed 04 August 2003.
2. Claim 1 remains pending and unchanged from the original filing. Claims 2-8 have been added by amendment and are now considered in the following action.
3. The following objections in view of the specification and drawings are maintained from the original action due to lack of treatment in the applicant's amendment (A).
4. In addition, further examination perpetuated by the applicant's amendments has uncovered previously undetected deficiencies, both objections and rejections, that are also cited below.

Drawings

5. New formal drawings will be required subject to the allowance of this application. Figures 1-6 contain hand drawings and/or numbering. These drawings do not conform to the patent office requirements. While these drawings are acceptable for the analysis of the application, pending allowance the applicant is advised to employ the services of a competent patent draftsman outside the Office, as the Patent and Trademark Office no longer prepares new drawings.
6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations of

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claims 2 and 6 specifically showing how the modulation of the laser is adjusted to control the rate of deposition must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

- ✓ 7. The drawings are objected to because item 110 in figure 1 is indicated as a CO₂ laser. Per the specification at page 6, line 13-15 it is believed that the laser should be labeled as a diode laser. If the figure is meant to show the state of the art, the figure should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

8. The abstract of the disclosure is objected to because it contains the purported merits of the invention. The abstract should be a short summary of the invention, 50-150 words in length. It should exclude the purported merits of the invention. Correction is required. See MPEP § 608.01(b).
9. The disclosure is objected to because of the following informalities:
- ✓ a. Page 4, line 19: Drawing item numbers "20" and "30" cannot be located in figure 1.

✓ b. Page 5, line 12 – The feedback controller should be drawing item number
“104” not “80” per figure 1.

✓ c. Page 5, line 13 – The numerical controller should be drawing item number
“108” not “90” per figure 1.

✓ d. Page 5, line 16: Drawing item numbers “20” and “30” cannot be located in
figure 1.

✓ e. Page 6, line 19: Drawing item numbers “301” cannot be located in figure 3.

Appropriate correction is required.

✓ 10. The errors noted by the examiner may not constitute all of the aberrations in the
specification. The applicant is encouraged to thoroughly review the specification
and correct any informality encountered.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 2-4 and 6-8 rejected under 35 U.S.C. 112, first paragraph, as failing to
comply with the written description requirement. The claim(s) contains subject
matter which was not described in the specification in such a way as to reasonably
convey to one skilled in the relevant art that the inventor(s), at the time the
application was filed, had possession of the claimed invention. A feedback controller
adjusting the rate of material deposition by modulating the laser to control the power
of the beam required in claims 2 and 6 is not enabled by the disclosure.

- a. The examiner believes that support for the claim might be found on page 6, line 13-page 7, line 4 of the specification, however the connection between the modulation and the deposition rate is not readily apparent.
- b. Claims 3,4,7 and 8 depend from claims 2 and 6, and are rejected for containing the same deficiencies.

Response to Arguments

13. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jeantette et al. (USPN 6,046,426 A) in view of Kar et al. (USPN 6,526,327 B2).

The limitations of claims 1-8, and the relevant citations in Jeantette et al., are as follows:

1. A system for automatically controlling the build-up of material on a substrate (column 1, lines 10-14), comprising:

[a controllable semiconductor diode laser having a beam directed to a localized region of the substrate so as to form a melt pool thereon];

a material feeder for feeding material into a melt pool to be melted by the beam to create a deposit having a physical attribute (column 2, lines 10-36);

an optoelectric sensor operative to output an electric signal as a function of the physical attribute (column 8, lines 8-26); and

a feedback controller operative to automatically adjust the rate of material deposition as a function of the electric signal (column 10, lines 26-49).

2. The system of claim 1, wherein the feedback controller is operative to adjust the rate of material deposition by modulating the laser to control the power of the beam (column 10, lines 1-25 wherein "the use of a continuously variable beam attenuator" as cited in line 22 is considered to be equivalent to modulating the laser).

Claims 3 and 4 requiring laser modulation in the kilohertz range, up to 20 kHz, would have been obvious to one of ordinary skill in the art at the time the invention was made depending on the bandwidth of the attenuation mechanism and the requirements of the application as supported by Jeantette et al. at column 10, lines 1-25 (specifically lines 23-25).

While Jeantette et al. allows for any laser with sufficient power to suffice as a laser source (column 9, lines 15-24), the reference does not recite the use of diode lasers in a laser material deposition system.

Kar et al. has been presented to show that the use of a diode laser in an analogous system (Kar et al., column 4, lines 11-48) was well known in the art at the time the invention was made. Kar et al. recites the use of such lasers at column 8, lines 44-49.

Method claims 5-8 contain the same functional limitations as system claims 1-4, and therefore are made obvious by the same citations in the combined references.

16. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

USPN 5,124,993 A – Braunlich et al. – Laser control

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elliot L Frank whose telephone number is (703) 305-5442. The examiner can normally be reached on M-F 7-4:30, 1st Friday off.

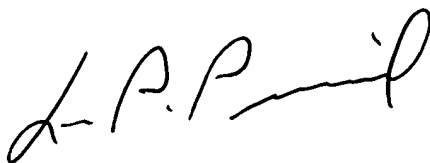
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P Picard can be reached on (703) 308-0538. The fax phone numbers for the organization where this application or proceeding is assigned are

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(703) 746-7239 for regular communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5484.

ELF
August 13, 2003

A handwritten signature in black ink, appearing to read "L. P. Picard", with a stylized flourish at the end.

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100